	United States Department of Agriculture	**Forest Service**	**Deschutes NF Sisters Ranger District**	**PO Box 249 Sisters, OR 97759**

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Aquatic Biological Evaluation CEC Right of Way Maintenance

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The following table displays the threatened, endangered and sensitive (TES) species considered in the analysis of the CEC Right of Way Maintenance Project.

Aquatic Species	Scientific Name	Status	Occurrence	Effects Determination
Bull Trout/Critical Habitat	*Salvelinus confluentus*	T	HD	NE/NE
Mid Columbia Steelhead Trout	*Oncorhynchus mykiss* ssp.	Exp	HN	NAE
Interior Columbia Redband Trout	*Oncorhynchus mykiss* ssp.	S	HD	BI
A Caddisfly	*Rhyacophila chandleri*	S	HN	NI
Zigzag Darner	*Aeshna sitchensis*	S	N	NI

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Status

E	Federally Endangered
T	Federally Threatened
S	Sensitive species from Regional Forester's list
C	Candidate species under Endangered Species Act
P	Proposed Critical Habitat
Exp	Experimental Population

Occurrence

HD	**Habitat Documented** or suspected within the project area or near enough to be impacted by project activities
HN	**Habitat Not** within the project area or affected by its activities
D	Species **Documented** in general vicinity of project activities
S	Species **Suspected** in general vicinity of project activities
N	Species **Not documented** and not suspected in general vicinity of project activities

Effects Determinations

Threatened and Endangered Species

NE	No Effect
NLAA	May Effect, Not Likely to Adversely Affect
LAA	May Effect, Likely to Adversely Affect
BE	Beneficial Effect

Sensitive Species

NI	No Impact
MIIH	May Impact Individuals or Habitat, but Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species
WIFV	Will Impact Individuals or Habitat with a Consequence that the Action May Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species
BI	Beneficial Impact

Mid Columbia Steelhead - Experimental Population

NAE	No Adverse Effect
AE	Adverse Effect on Essential Fish Habitat

Introduction

This Biological Evaluation (BE) documents the review and findings of the Forest Service planned programs and activities for possible effects on species (1) listed or proposed for listing by the USDI Fish and Wildlife Service (USFWS) as Threatened or Endangered; or (2) designated by the Pacific Northwest Regional Forester as Sensitive; or (3) required consultation with the National Marine Fisheries Service (NMFS). It is prepared in compliance with the requirements of Forest Service Manual (FSM) 2630.3, FSM 2672.4, and the Endangered Species Act of 1973, as amended (ESA) (Subpart B; 402.12, Section 7 Consultation).

The following analysis addresses the potential effects of power line maintenance on threatened, endangered, and sensitive fish species. This determination, required by the Interagency Cooperation Regulations (Federal Register, January 4, 1978), ensures compliance with the ESA. Changes to the R-6 Regional Forester's Sensitive Species List were instituted in 2019.

Proposed Action

Central Electric Cooperative, Inc. (CEC) would fell up to 500 hazard trees located within 13 miles of Right of Way (ROW) (10 ft each side of powerline), equating to approximately 40 acres of potential impact, on the Sisters Ranger District (RD). About 40 felled trees would be retained by the Forest Service that would later be placed into the Metolius River under the Metolius Wood project to provide large wood aquatic species. Felled trees not intended for other purposes would be placed in log decks and sold as forest products. Some trees would be felled and left to prevent resource damage or as mitigation. In the Riparian Reserve (RR), approximately 28 trees would be felled and left, one of which will be felled into First Creek and two into Davis Creek. Some trees may have to be felled in pieces for safety reasons. These pieces would be taken to the landings and sold or burned. CEC would also trim tree limbs adjacent to the ROW that pose a potential arching hazard. Logging debris (slash) could be placed in piles for subsequent burning, lopped and scattered, or chipped on-site and removed depending on the location of tree felling, removal, and the amount of slash. CEC would also replace approximately 131 power poles within the ROW, approximately 57 of which would be within the RR, and most within 2 ft of their existing location.

Aquatic Project Design Criteria

- Maintain down wood needed in Riparian Reserves for ACS objectives by hand-felling and leaving some trees greater than 12" dbh in the Riparian Reserve (identified by an aquatic specialist).
- Hand-fell and leave trees in high water table areas that support riparian vegetation in order to prevent resource damage (identified by aquatic specialist).
- Locate landings outside the Riparian Reserve where possible or utilize existing landings or compacted surfaces.

- Do not create new roads or trails within Riparian Reserves. Utilize existing road/trail footprints to access trees and haul.
- If trees marked as fell and leave trees for RR have to be taken down in pieces for safety, then remove all the pieces by either lopping and scattering limbs and stacking bole wood for firewood, piling and burning, or hauling to the landing for removal.
- Locate burn piles at least 100 feet away from live and intermittent stream channels and lakes and outside of riparian vegetation, whichever is greatest. Do not locate burn piles in swales, washes, or depressions. Burn piles should not cover more than 5% of the area within RRs and should be less than 100 ft^2.

Analysis Area

The direct, indirect and cumulative effects analysis area is the Headwaters Metolius River Subwatershed (SWS), the lower 0.5 miles of the Lower Lake Creek SWS, and the lower 500 ft of the First Creek SWS. A small amount of treatment would occur in the Jack Creek SWS and the Lower Indian Ford SWS but these SWSs are not included in the Analysis Area. Although approximately 53 hazard trees would be removed and 27 poles replaced, no trees would be treated in the Riparian Habitat Conservation Area (INFISH management direction) in the Lower Indian Ford Creek SWS and only 1 pole within the Riparian Habitat Conservation Area would be replaced. In the Jack Creek SWS only 1 pole on the outer edge of the Riparian Reserve (NWFP management direction) would be replaced. Given that very little disturbance would occur in the RR/RHCA and access would be on existing authorized roads, the Lower Indian Ford Creek and Jack Creek SWSs are excluded from the Analysis Area. Therefore, all subwatersheds in the Analysis Area are within the Upper Metolius River Watershed, within the Northwest Forest Plan management area, and all of the treatment in these SWSs is within the Metolius Wild and Scenic River Corridor.

Management Direction

A number of Forest planning documents and assessments guide the development of the purpose and need and the proposed action. All federal land management activities in the CEC Right of Way Maintenance Project area must follow standards and guidelines listed in the 1990 Deschutes National Forest Land and Resource Management Plan (USDA Forest Service 1990) as amended by the Northwest Forest Plan (NWFP) (USDA Forest Service and USDI Bureau of Land Management 1994) and the Record of Decision for Metolius Wild and Scenic River Management Plan (MWSRMP) (USDA Forest Service 1997), and in accordance with Best Management Practices (WT-5) and the Clean Water Act (WT-1). All National Forest lands in the Hydrology Analysis Area for the CEC Right of Way Maintenance Project area fall under the guidance of the NWFP. Project activities in the Lower Indian Ford SWS, the majority of which are outside the Riparian Habitat Conservation Area, fall under the guidance of INFISH (USDA Forest Service and USDI Bureau of Land Management 1995). Additional guidance is provided by Metolius Watershed Analysis and Update (USDA Forest Service 1996, 2004) and the Metolius Wild and Scenic Management Plan (USDA Forest Service 1997).

Deschutes National Forest Land and Resource Management Plan

The following standards and guidelines from the Deschutes Land and Resource Management Plan are applicable to the project:

RP-3. Give preference to riparian area dependent resources over other resources.
RP- 10. Manage woody debris and riparian vegetation to: 1) maintain or enhance stream channel and bank structure, and, 2) provide structural fish habitat to meet the objective for resident fish populations provided for in the Forest Plan.
RP-14. An adequate supply of large organic material for present and future input to the stream will be maintained.
RP-39. Large organic material which is beneficial to fish, wildlife or water quality will be preserved in riparian areas, stream or river channels and lakes adjacent to summer homes. Streambank erosion or esthetic enhancements are not adequate reasons for its removal. The material may be altered if it creates a safety hazard, however its contribution to the riparian resources will be preserved.

Northwest Forest Plan

The Deschutes National Forest LRMP was amended in 1994 by the Record of Decision for Amendments to the Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (Northwest Forest Plan) (USDA Forest Service and USDI Bureau of Land Management 1994).

The portion of the CEC Right of Way Maintenance project area within the Metolius Basin is managed under the direction of the Northwest Forest Plan. The Riparian Reserve land allocation was established as a key element of the Aquatic Conservation Strategy where riparian-dependent resources receive primary emphasis. Some actions within the project area would occur within Riparian Reserves. The project would comply with the following four requirements for projects within Riparian Reserves as directed in the ROD (USDA Forest Service and USDI Bureau of Land Management 1994): "1) review projects against the ACS objectives at the project or site scale, rather than only at the watershed scale, 2) evaluate the immediate (short-term) impacts, as well as long-term impacts of an action, 3) provide a description of the existing condition, including the important physical and biological components of the 5th field watershed; and 4) provide written evidence that the decision maker considered relevant findings of watershed analysis." The activities associated with the CEC Right of Way Maintenance Project that are within Riparian Reserves would be cutting and decking trees, cutting and leaving trees, piling and burning slash, chipping slash, and/or lopping and scattering slash.

The CEC Right of Way Maintenance Project meets the four requirements by: 1) providing an analysis of the ACS objectives 2) evaluating effects in the hydrology report, 3) referencing the Metolius Watershed Analysis and Update (USDA Forest Service 1996, 2004), which describe the existing condition, and 4) by providing a Decision Memo written by the District Ranger demonstrating the use of watershed analysis.

The NWFP provides standards and guidelines for Key Watersheds and Riparian Reserves (RRs) that prohibit or regulate activities that retard or prevent attainment of the Aquatic Conservation

Strategy (ACS) Objectives at the project-level and watershed scale. Key watersheds under the NWFP contribute directly to the conservation of the threatened bull trout and resident fish populations. All the subwatersheds in the hydrology analysis area for the CEC Right of Way Maintenance Project are considered "key watersheds" under the NWFP.

Northwest Forest Plan Standards and Guidelines

The NWFP (USDA Forest Service and USDI Bureau of Land Management 1994) provides standards and guidelines for Timber Management, Roads Management, Fire Fuels Management, Key Watersheds and Riparian Reserves (RRs) that prohibit or regulate activities that retard or prevent attainment of the Aquatic Conservation Strategy (ACS) Objectives at the watershed scale (see below). All proposed actions in the CEC Right of Way Maintenance Project comply with the Key Watershed and Riparian Reserve standards and guidelines in the NWFP. The following NWFP standards and guidelines apply to the project:

Management in Riparian Reserves

Lands

LH-4. For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of the Aquatic Conservation Strategy objectives. If adjustments are not effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resource affected.

General Riparian Area Management:

RA-2 Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.

Timber Management:

TM-1. Prohibit timber harvest, including fuelwood cutting, in Riparian Reserves, except as described below. Riparian Reserve acres shall not be included in calculations of the timber base.

a. Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting if required to attain Aquatic Conservation Strategy objectives.

b. Salvage trees only when watershed analysis determines that present and future coarse woody debris needs are met and other Aquatic Conservation Strategy objectives are not adversely affected.

c. Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives.

Aquatic Conservation Strategy

An essential piece of the Northwest Forest Plan is the ACS (Aquatic Conservation Strategy) which "was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands" (USDA Forest Service and USDI Bureau of Land Management 1994, B-9). Management activities proposed for watersheds must meet the nine ACS objectives as specified in the Northwest Forest Plan (pages C31-C38).

ACS Objective 1: Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.
The CEC Right of Way Maintenance Project would not alter watershed or landscape scale features. Although the building a utility corridor and maintenance of that corridor has altered the landscape by eliminating trees within the 20 ft wide corridor, the removal of the felled trees and debris left behind from maintenance of that corridor proposed in this project would not alter watershed and landscape-scale features.

ACS Objective 2: Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include flood plains, wetlands, upsweep areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.
Utility corridors that continue to be maintained have the potential to bisect network connections that could impact the habitat within the corridor. While the area impacted is relatively small (20 ft wide and ~40 acres) and the spatial impacts do not physically or chemically obstruct routes, when corridors are located in the Riparian Reserve they can slightly reduce future wood recruitment to the stream and down wood retention in the Riparian Reserve which are important elements for species migration. Although the utility corridor in the Riparian Reserve could have an effect on network connections, the removal of some of the felled trees in the corridor in the Riparian Reserve would be negligible to network connections.

Over the 13 miles of utility corridor that would be treated under this project, only approximately 76 trees greater than 12" dbh in the Riparian Reserve would be felled. Of these, approximately 28 trees greater than 12"dbh would be felled and left in the Riparian Reserve in order not to cause resource damage. Approximately 20 of the 76 trees would be felled and retained to later be added to the Metolius River within the CEC project area under a stream restoration project. An additional 20 trees felled outside the Riparian Reserve would be retained to later be added to the Metolius River under the same stream restoration project for a total of 40 trees to be placed instream. Most of the 28 trees greater than 12" dbh that would be removed in the Riparian Reserve would be on the high bench on the east side of the Metolius River.

Likewise, ground disturbance caused by the replacement of 57 power poles in the Riparian Reserve, would be minimal and not at a magnitude to alter plant communities. Ground and vegetation disturbance caused by the replacement of power poles in Riparian Reserves would impact less than 1 acre over approximately 7 miles. Project design criteria such as requiring

clean equipment before entering a site would help prevent the spread of invasive species as a result of this project.

Therefore, the lateral, longitudinal, and drainage network connections would be maintained by the CEC Right of Way Maintenance project because only a net minimal amount of trees (~8 trees) would be removed from approximately 2 miles of Riparian Reserve and ground and vegetation disturbance from replace of power poles would be negligible.

ACS Objective 3: Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
The CEC Right of Way Maintenance project would maintain the physical integrity of the aquatic system in the Upper Metolius Watershed. No trees on the shorelines would be removed. Two trees greater than 12"dbh would be felled into Davis Creek and one into First Creek to provide aquatic habitat complexity to help maintain the physical integrity of the aquatic system. Approximately 40 trees felled under this project would be retained to be later used under a stream restoration project to help restore the physical integrity of the aquatic system in the Metolius River. In addition, replacement power poles would generally be within 2 ft of existing poles and would not affect the integrity of the shoreline.

ACS Objective 4: Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.
Water quality would not be affected by the CEC Right of Way Maintenance project because sedimentation, water temperature, and chemical contamination effects are not predicted (see Hydrology Report). Project design criteria and contract regulations restrict road use to existing authorized roads during periods of suitable soil conditions and require equipment inspection and maintenance and a spill kit on-site for emergencies. No new roads would be constructed and landings in Riparian Reserves would be restricted to existing disturbed surfaces. Therefore, the project would maintain the water quality necessary to support healthy riparian, aquatic and wetland ecosystems in the Upper Metolius Watershed.

ACS Objective 5: Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
The sediment regime under which aquatic ecosystems have evolved would be maintained by the CEC Right of Way Maintenance project because sediment input to the streams is not predicted. Ground-based equipment would primarily occur on existing authorized roads because CEC has access roads to their powerline throughout their 20 ft right-of-way. Some single out-and-back passes with ground-based equipment could occur in the Riparian Reserve but it would be minimal and spread over a large area. Project design criteria and contract regulations requiring the maintenance of road drainage and restriction of ground-based operations to periods that wouldn't create runoff would prevent logging operations from contributing to sedimentation. In addition, ground disturbance caused by the replacement of 57 power poles in the Riparian

Reserve, would be minimal and not at a magnitude to alter the sediment regime. Ground disturbance caused by the replacement of power poles in Riparian Reserves would impact less than 1 acre over approximately 7 miles.

ACS Objective 6: Maintain and restore in-stream flows sufficient to create and restore riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration and spatial distribution of peak, high, and low flows must be protected.

The CEC Right of Way Maintenance Project would maintain existing in-stream flows. Although the building of a utility corridor and maintenance of that corridor has removed all tree canopy and keeps brush to a minimum height within the 20 ft wide corridor, the removal of the trees and debris left behind from maintenance of that corridor which is proposed under this project would not alter in-stream flows. Trees that would be removed were already slated to be felled once the powerline was built as a requirement of the special use permit allowing maintenance of the powerline. Therefore, trees that would be removed under this project would not affect evapotranspiration of the trees. In addition, runoff would not increase by removing the trees because no new roads would be constructed and compaction in the Riparian Reserve from ghost trails used to access trees would be negligible.

ACS Objective 7: Maintain and restore timing, variability, and duration of flood plain inundation and water table elevation in meadows and wetlands.
The CEC Right of Way Maintenance Project has no measurable effects on floodplains and water table elevations in meadows and wetlands because no significant ground-disturbing activities would occur in wetlands or meadows. Where the powerline corridor passes through these high water table areas, trees would be hand-felled and left to prevent resource damage. Hand-felling trees would not drain wetlands or intercept surface or groundwater flows that would alter the water table elevations in meadows and wetlands. The timing, variability, and duration of flood plain inundation and water table elevation in meadows and wetlands would be maintained within the Upper Metolius Watershed.

ACS Objective 8: Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability.
The CEC Right of Way Maintenance Project would maintain species composition and structural diversity of riparian plant communities. Although the building of a utility corridor and maintenance of that corridor has altered the vegetation by eliminating trees within the 20 ft wide corridor, the removal of the felled trees and debris left behind from maintenance of that corridor proposed in this project would not alter plant communities in riparian areas. Trees that are in high water table soils that support riparian vegetation would be hand felled and left in order to not create resource damage to the soils or riparian vegetation. In addition, ground disturbance caused by the replacement of 57 power poles in the Riparian Reserve, would be minimal and not at a magnitude to alter plant communities. Ground disturbance caused by the replacement of

power poles in Riparian Reserves would impact less than 1 acre over approximately 7 miles. Project design criteria such as requiring clean equipment before entering a site would help prevent the spread of invasive species as a result of this project.

ACS Objective 9: Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

The CEC Right of Way Maintenance Project would maintain habitat for riparian-dependent species. Although the building of a utility corridor and maintenance of that corridor has altered the habitat by eliminating trees within the 20 ft wide corridor, the removal of the felled trees and debris left behind from maintenance of that corridor proposed in this project would not alter the habitat left behind in riparian areas. Trees that could be felled in the Riparian Reserve provide habitat and approximately only a net of 8 trees would be removed from the Riparian Reserve within a 2 mile area. The amount of trees removed in the Riparian Reserve is not at a magnitude that would retard habitat for riparian dependent species. Ground disturbance caused by the replacement of 57 power poles in the Riparian Reserve, would be minimal and not at a magnitude to alter habitat. Ground disturbance caused by the replacement of power poles in Riparian Reserves would impact less than 1 acre over approximately 7 miles. Project design criteria such as requiring clean equipment before entering a site would help prevent the spread of invasive species as a result of this project.

Statement of Consistency with ACS Objectives

Overall, this project would maintain riparian vegetation and aquatic conditions within the fifth field watershed and would not impede the development of late-successional forest characteristics in second growth and old growth stands both within and outside of Riparian Reserves. The project would maintain the natural sediment regime through design elements and Best Management Practices which would prevent new road construction or landings in Riparian Reserves and would require maintenance of drainage on haul routes and adherence to contract specifications for haul conditions. These design elements and BMPs protect riparian areas and maintain the existing vegetation, connectivity, water flow, water quality, and habitat within the Upper Metolius Watershed. The project would not result in measurable increases in sediment production or changes to the streamflow regime at individual sites. At the site or watershed scale, changes in water quality, turbidity or sediment production would not be detectable. Based on the evaluation of the short-term, long-term, and cumulative impacts, the CEC Right of Way Maintenance Project is designed to "contribute to maintaining or restoring the fifth-field watershed over the long-term." Therefore, this project would be consistent with the ASC objectives.

Riparian Reserve Buffer Distances

The Sisters/Whychus Watershed Analysis refined Riparian Reserve widths under the Northwest Forest Plan based on average maximum tree height, 100 yr floodplain, extent of riparian vegetation, and unstable and potentially unstable lands (USDA Forest Service 1998) (Table 3). The Metolius Watershed Analysis Update refined Riparian Reserve widths under the Northwest Forest Plan based on average maximum tree height, 100 yr floodplain, extent of riparian vegetation, and unstable and potentially unstable lands (USDA Forest Service 2004) These distances meet or exceed those defined by the NWFP and the Deschutes Forest LRMP.

Table 3. Riparian Reserve (RR) widths in the Project area.

Category	*Stream Class*	*Description*	*RR width (slope distance (ft) from edge of channel) for Whychus/Metolius*
1	1 & 2	Fish-bearing streams	300/320 ft
2	3	Permanently flowing non-fish-bearing streams	150/160 ft
3	NA	Ponds, lakes, reservoirs, and wetlands > 1 ac	150/160 ft
4	4	Seasonally flowing or intermittent streams, wetlands < 1 ac, unstable or potentially unstable areas	150/160 ft

Metolius Wild and Scenic River Plan

The Deschutes National Forest Land and Resource Management Plan (LMRP) identifies the Metolius River as a Wild and Scenic River. The Deschutes LRMP was amended in 1997 by the Record of Decision for Metolius Wild and Scenic River Management Plan (MWSRMP), which replaces the interim direction provided in Deschutes LRMP for Management Area MA-28 (USDA 1997). The MWSRMP provides the goals, objectives, and standards and guidelines for the management of the Metolius River.

Segment 1, from the south Deschutes National Forest boundary near the headwater springs to Bridge 99, is designated as Recreational river. The highly intact natural surroundings and historic character of the human alterations provides the setting for recreation which emphasizes enduring traditional activities (camping, fishing, hiking).

Segment 2, from Bridge 99 to Lake Billy Chinook, is designated as a Scenic river. The area is managed to protect and perpetuate a predominantly unmodified environment where natural ecological processes can continue. The diversity of habitat provides for a wide variety of wildlife, especially riparian-dependent and riverine species.

The Outstandingly Remarkable Values (ORVs), identified in the Metolius River Resource Assessment (1992) and associated with the Metolius Wild and Scenic River Corridor include ecological (including vegetation), water quality, fisheries, wildlife, scenery, recreation, cultural, and geology. Consistency with the Plan was assessed in terms of whether actions are within the standards and guidelines listed in the Metolius Wild and Scenic River Plan for the ORVs.

The following are standards and guidelines used to design the project to be consistent with the plan and the Wild and Scenic Rivers Act as they relate to activities that would occur in the Riparian Reserve:

MTEV-5. Timber harvest, salvage, harvest of commercial forest products, and firewood cutting are only used to restore desired vegetation conditions, enable the safe and efficient use of prescribed fire, or protect surrounding stands which are at risk from high intensity disturbance.

MTEV-6. Reduce fuel loads in riparian areas only when necessary to protect life and property. Handpiling or low intensity burns are the preferred treatment methods. Woody material larger than 15 inches in diameter will be protected or redistributed to the greatest extent possible.

MTFH-1. Restoration of fish habitat is primarily through natural processes of infall and distribution.

MTFH-2. Active habitat restoration may be performed in areas where hazard tree management or wood adjustment for boating have altered natural processes, or the availability of large woody material has been altered.

MTFH-3. Active habitat restoration will appear comparable to habitat formed from natural processes.

MTFH-4. In-stream work including fish habitat restoration is performed only between May 1 and August 1 of any year to protect rearing and spawning fish (Seasons of in-water work are negotiated with Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service USFWS), and National Marine Fisheries Service (NMFS).

MTUU-1. New transmission lines, gas lines, water lines, etc. which are not primarily for servicing uses within the corridor are not permitted.

MTUU-2. New utilities determined necessary to service the corridor are constructed to minimize visual impacts to the greatest extent possible while protecting other resources. New utilities are located underground and in existing transportation rights-of-way to the greatest extent possible.

MTSU-1. Commercial special uses and special uses which involve development (placement of fixed improvement) may be permitted if they respond to a demonstrated need: 1) are necessary for the health and safety of the public, 2) are necessary to accomplish a specific goal of the Plan, 3) fulfill an agency management and administrative role, or 4) involve the study or research of values unique to the Metolius.

MTSU-3. The criteria in NTSU-1 and NTSU-2 apply to new uses and changes to existing uses. They are not applied to the reissuance of permits for existing uses or uses which do not require permits.

Effects Analysis and Biological Assessment

Watershed Condition
Road density is high both in the uplands and in the Riparian Reserves of the Metolius watershed (USDA Forest Service 2004). In most subwatersheds, road densities exceed 2.4 miles per square mile. Road closures and obliterations have become a restoration focus within the basin within the last 10 years and have been accelerated after the 1996 flood. Small-scale water withdrawal occurs on Lake Creek, Jack Creek, Canyon Creek and the Metolius River. No new surface rights are being issued by the State Water Resources Department. Less than 10% of the flow of the tributaries is taken. Some Metolius River water users pump water from the river for home use. Fish habitat improvements have been conducted on the Metolius River and tributaries. The Metolius River had wood and rocks added in the upper Camp Sherman area in the mid 1980's. Large whole trees were added to the river in the Allen Springs area in the late 1980's. Currently, trees are added to the river for fish habitat under the Metolius Wood Restoration Project. Side channel and instream wood restoration projects were done on side channels on Jack Creek, Canyon Creek, Roaring Creek, Candle Creek, and Jefferson Creek.

Effects to the Metolius Wild and Scenic River
Fisheries ORV

The project will protect and maintain the Fisheries ORV along the Metolius River by retaining some down wood in the Riparian Reserve for upland habitat and soil erosion control. Some of the trees cut to maintain the power line will later be taken to the Metolius River for placement to improve fish habitat. These 40 trees will serve to maintain the wood recruitment to the Metolius River from the Riparian Reserve. Although this project does not include assessment of the effects of the work to improve fish habitat in the Metolius River, the ultimate retention of large wood in the Riparian Reserve and W&S corridor is consistent with the Wild and Scenic River Management Plan standards and guidelines MTFH 2 and 3 and the NWFP ACS objectives.

Middle Columbia River Bull Trout - *Salvelinus confluentus*
Bull Trout Critical Habitat
USFWS Threatened Species

Existing Condition
The Metolius River/Lake Billy Chinook bull trout population is healthy as stated by Ratliff and Howell (1992) and Buchanan et al. (1997). Spawning habitat for bull trout in the Metolius Watershed includes: Jack Creek, Canyon Creek, Roaring Creek, Candle Creek, Jefferson Creek, Heising Spring, Whitewater River and the Metolius River. Rearing habitat are found in the Metolius River, Spring Creek, Brush Creek and Abbot Creek, with an isolated sighting in First Creek. Additional rearing habitats in the Metolius/Lake Billy Chinook system include: Lake Billy Chinook, Squaw Creek below Alder Springs, Deschutes River below Steelhead Falls and Crooked River below Opal Springs. Trends in spawning population size have increased since 1986 from 27 redds to over 500 redds by 2002. The increase is attributed to protection from harvest by more restrictive angling regulations (Riehle et al. 1997).

The Metolius River bull trout population contains a mixture of both fluvial and adfluvial fish. Some resident segments of the population may exist. All life strategies use small tributaries to the Metolius River for spawning. Mainstem river spawning has been documented in only a ½ mile reach of the upper Metolius River near the mouth of Jack Creek. Surveys have been conducted documenting streams used by bull trout in the Metolius drainage. Spawning occurs in spring-fed reaches of Jack Creek, Heising Spring, Canyon Creek, Roaring Creek, Candle Creek, Jefferson Creek and Whitewater River. Rearing habitat is found in all spawning streams plus Brush Creek, Abbot Creek, Spring Creek, and the Metolius River.

Lake Billy Chinook (Round Butte Dam) provides additional rearing habitat. Most juveniles move out of the spawning and rearing streams at age 2 and move into the Metolius River and eventually into Lake Billy Chinook. Primarily age 3 and older bull trout reside in the lake. At age 5, most bull trout mature and move up the Metolius River and into the spawning tributaries to spawn. All tributaries used by bull trout are influenced by groundwater springs. Glacial meltwater and sediments from Mt. Jefferson influence Jefferson Creek and Whitewater River. The historic distribution of bull trout in the Metolius system has been reduced (Ratliff 1992).

Migration routes have mostly remained open in the Metolius River watershed. The connection between the Metolius and Suttle Lake may be restricted due to small, low dams for pond and irrigation management. The Round Butte and Pelton dams on the Deschutes River prevent access of migrating bull trout to the lower Deschutes River and Columbia River. The connection of the Metolius River with the Warm Springs River and Shitike Creek bull trout populations has been severed since the dams were constructed, preventing genetic interaction between the two segments of the Lower Deschutes River metapopulation.

In the Metolius basin, young bull trout less then 100 mm were found most consistently in the coldest, spring-influenced tributaries (Ratliff 1992). In the Metolius River system, bull trout Age 0+ range between 20-40 mm, 1+ range between 60-99 mm, 2+ range between 100-159 mm and 3+ are greater than 160 mm (Ratliff et al. 1996). In other systems, bull trout less than 110 mm feed on aquatic insects, macro-zooplankton, and mysids while those larger are primarily piscivorous (Horner 1978; Shepard et al. 1984). Resident adults range from 150 to 300 mm in length (Geotz 1989; Mullan et al. 1992) while migratory bull trout commonly exceed 600 mm (Shepard et al. 1984, Pratt 1984, and Goetz 1989). Growth differs little between resident and migratory forms during stream residence but diverges as migratory fish move into larger and more productive waters.

Introductions of non-indigenous species through state stocking programs has led to the presence of brook trout populations in Canyon Creek and Abbot Creek, and brown trout in Lake Creek, Link Creek and Suttle Lake which may have increased competition with bull trout. The loss of the anadromous sockeye and chinook in the Metolius River may have reduced the riverine forage base of juveniles and smolts often associated with fluvial bull trout populations elsewhere. Kokanee in Lake Billy Chinook may fulfill some of that role of nutrient inputs in the upper river. Because of the aggressive nature of the bull trout, angling mortality has been a significant factor in some streams and lakes. State agencies with fish management responsibilities play a significant role regulating harvest of both bull trout and potential competitors such as brook

trout, and implementing stocking programs, where competing fish species may be maintained or introduced into bull trout habitats.

Bull trout habitat in the Metolius River drainage and Upper Deschutes below Steelhead Falls are generally in good condition. Water temperature in most spawning and rearing streams are below 10° C during spawning and rarely exceed 12° C during the peak of the summer. Juvenile habitat in the form of undercut banks, overhanging vegetation, aquatic vegetation and wood is abundant in many of the rearing streams tributary to the Metolius River. Wood density is high compared to other basins. Due to the stability of the streams, little wood is transported out during normal spring flows. Fine sediment in spawning areas is a concern and may have increased from past road construction and riparian logging. The low gradient, spring-fed reaches are particularly sensitive to fine sediment loading due to their low sediment transport rates. The percentage of fine sediment in spawning gravel monitored is moderate to low and has declined as a result of the 1996 flood (Houslet and Riehle 1998). If fine sediment had historically increased from past management activities, we may still be witnessing the effects to the springs today, due to their stable flow regime.

Effects to Bull Trout and Critical Habitat

Direct and Indirect Effects

No direct effects to bull trout or critical habitat will occur because the only in channel work will occur in dry channels where no bull trout occur. No indirect effects are likely since the First Creek is only intermittent and it is rare that bull trout use First Creek on normal years.

Cumulative Effects

No cumulative effects to bull trout or bull trout critical habitat because no other projects are planned in First Creek. No direct or indirect effects will occur, and therefore cumulative effects are not expected.

Mitigation

The following minimization measures are needed and will be adhered to in order to protect the viability of the First Creek redband trout and to avoid any possible effects to the bull trout population:

- In-water work period for the protection of spawning and incubating fish is from July 1 to October 15th.

Determination

No Effect will occur to bull trout or bull trout critical habitat because these fish and habitats are not found in the area impacted by this project. All instream work will occur when First Creek is dry and no bull trout will be present. No measurable downstream impacts will occur.

Interior Columbia Basin Redband Trout- *Oncorhynchus mykiss*
Forest Service Region 6 Sensitive Species

Mid Columbia Steelhead Trout- *Oncorhynchus mykiss*
NMFS Experimental Population - 10(j)

Existing Condition
Redband trout (*Oncorhynchus mykiss gairdneri*) are found in Lake Creek, Link Creek, Canyon Creek, First Creek, Abbot Creek, Suttle Lake and the Metolius River. The Metolius River population has been increasing in recent years and the adult spawning population has more than tripled in the last five years. The cause of the increase is unknown, but may be the result of recovery after drought, lack of hatchery fish and/or increased large wood in the upper river (Mike Riehle, Sisters R.D. Fisheries Biologist, personal communication). Lake Creek is a spawning stream for redband trout although the spawning timing is slightly later than for the Metolius River. Hatchery rainbow trout from Wizard Falls Trout Hatchery were stocked in the Metolius River until 1995 when the program was discontinued to protect wild fish.

Numbers of adult spawning fish have increased since 1995 by three fold in the upper river and has stabilized in recent years (USFS/ODFW data on file). Spawning occurs generally from December through June, but every month has some spawning occurring. Over 80% of the spawning of redband trout occurs upstream of Camp Sherman, with increasing density moving upstream to the springs.

All steelhead in the Columbia River Basin upstream from The Dalles Dam are summer-run steelhead (Schreck et al. 1986, Reisenbichler et al. 1992, and Chapman et al. 1994). Life history information for steelhead of this Ecologically Significant Unit (ESU) indicates that most Middle Columbia River steelhead smolts at 2 years and spend 1 to 2 years in salt water prior to re-entering fresh water, where they remain up to 1 year prior to spawning (Howell et al. 1985).

Summer steelhead occur throughout the main stem lower Deschutes River below Pelton Reregulating Dam (RM 100) and in most tributaries below the dam. Before construction of the Pelton Round Butte hydroelectric complex, summer steelhead were also found in the Deschutes River upstream to Big Falls (RM 128), in Whychus Creek, and in the Crooked River (Nehlsen 1995). Historic summer steelhead presence in the Metolius River is uncertain (Nehlsen 1995).

Construction of Pelton and Round Butte dams, completed in 1958 and 1964, respectively, included upstream passage facilities for adult chinook salmon and steelhead and downstream facilities for migrating juveniles. By the late 1960's, it became apparent that the upriver runs could not be sustained naturally with these facilities, due primarily to inadequate downstream passage of juveniles through the complex, and summer steelhead production upstream of the dam complex was lost.

Spawning in the lower Deschutes River and westside tributaries usually begins in March and continues through June. Spawning in eastside tributaries occurs from January through mid-April, and may have evolved to an earlier time than westside tributaries or the main stem because stream flow tends to decrease earlier in the more arid eastside streams (Olsen et al. 1993).

Fry emerge in spring or early summer depending on time of spawning and water temperature during incubation. Zimmerman and Reeves (1996) documented summer steelhead emergence in late May through June. Juvenile steelhead emigrate from the tributaries in spring at age 0 to age 3. Many of the juveniles that migrate from the tributaries continue to rear in the main stem lower Deschutes River before smolting.

The Pelton Round Butte hydroelectric complex at RM 100 is currently a complete upstream passage barrier to anadromous and resident fish and does not have functional downstream juvenile passage. Although much historic summer steelhead habitat and production in the Crooked River has been lost due to dams on that river, historic and current production potential in the main stem Deschutes River below Steelhead Falls, Whychus Creek, and the Metolius River has been lost because of the Pelton Round Butte hydroelectric complex (Nehlsen 1995). Renewed fish passage at Pelton Round Butte Dams will open habitats in these watersheds to steelhead trout production starting in 2009. Whychus Creek was perhaps 60% of the steelhead production in the upper watershed before Round Butte Dam was constructed (Nehlsen 1995).

Direct and Indirect Effects

The only effects to redband trout that may be possible is the habitat improvement of falling a tree into First Creek. No direct effects will occur because the work will be done in the dry season but the temporal effect of increased habitat in the intermittent reach of First Creek will be small scale and seasonal. Fry use the lower reach of First Creek in the springtime but only until mid-June when the creek dries up. This seasonal habitat may be increased at the local level from the addition of the fall and leave tree. No effects to steelhead trout are expected since no habitat exists for this life history in the project area.

Cumulative Effects

No other projects will occur in the same project area that will combine to effect of habitat of redband trout. Future instream wood projects in the Metolius River, downstream of First Creek, may benefit the redband trout population in the River, but the addition of one tree to First Creek will not combine to result in a significant cumulative effect.

Mitigation

The following minimization measures are needed and will be adhered to in order to protect the viability of the First Creek redband trout population:

- In-water work period for the protection of spawning and incubating fish is from July 1 to October 15th.

Determination

Beneficial Effect to Interior Columbia River redband trout and No Adverse Effect to steelhead trout population. No fish will be directly impacted by this project because the work will be done away from streams that have redband trout or when First Creek is dry. Some seasonal habitat may be provided to redband trout juveniles and fry in the spring when First Creek is flowing. This will be minor and temporary beneficial effect to habitat for redband trout. No adverse effects will occur to steelhead trout since there is no habitat in the project area.

A Caddisfly - *Rhyacophila Chandleri*
USFS- Region 6 Sensitive Species

Existing Distribution and Habitat
This species of caddisfly is known only from Siskiyou Co., California, and Lane and Deschutes counties, Oregon. It is thought to be a rare species that is very patchily distributed, and apparently highly localized where it does occur (Wisseman pers. comm. in USDA and USDI 2005). Its range is thought to be in the Cascade Mountains of Oregon and California. It is associated with very cold, larger spring-fed streams (Wisseman pers. Comm. in USDA and USDI 2005). There is no specific information available on threats to this species or its habitat. Activities that degrade water quality or increase water temperatures would likely have negative impacts on this species (USDA and USDI 2005). This species was reportedly collected in 1982 from Tyee Creek near Devils Lake on the Deschutes National Forest, Bend Ranger District (Giersch 2002). This species may exist elsewhere on the forest in headwater spring habitats but sampling for marcroinvertebrates has mainly been limited to larger streams and river sections on the Sisters Ranger District and this species was not identified in those samples.

First Creek is not spring fed and is largely intermittent during the summer time. A short perennial reach in the headwaters has fish but flow is low and water temperatures becomes quite warm in the summer months and it is 303-d listed for water temperature by ODEQ. It is highly unlikely that a caddisfly would be present at the site because the water quality does not meet its requirements described in the Species Fact Sheet (USDA and USDI 2005).

Direct, Indirect and Cumulative Effects
No habitat exists in the project area for this species and therefore no direct or indirect effects will result. No cumulative effects will result since no habitat for this species will be affected.

Determination
No Impact to A Caddisfly will result from this project because no habitat exists in the project area.

Zigzag darner - *Aeshna sitchensis*
USFS- Region 6 Sensitive Species

Existing Distribution and Habitat (from Xerces Society 2011)
The habitat description includes wet sedge meadows, fens, bogs, and very shallow peaty ponds are the reported habitat for this boreal species (Paulson 2009, 2010; Bryan 2010). According to the Wisconsin Odonate Survey website (2010), this species prefers bog pools, ten square yards or less, usually without emergent plants, including pools that dry in the summer. It can also be found in shallow, evenly vegetated sedge/moss fens with puddles (Wisconsin Odonate Survey 2010). Walker (1921) describes one breeding site in British Columbia as a small mossy bog at the foot of a mountain, fed by springs and seepage from a small, cold mountain brook. The bog at this site was partly enclosed by spruce forest and there was practically no aquatic vegetation other than the partly submerged moss (Walker 1921). In Oregon, the species is only numerous at

one site (sedge meadow near Sparks Lake) (Johnson 2010, *pers. comm.*). The Washington sites range in elevation from 1850 ft. (Fish Lake, Chelan County) to 3500 ft. (South Prairie, Skamania County) to 5000-6000 ft. (northeast Washington) (Paulson 2010).

Direct, Indirect and Cumulative Effects
No habitat exists in the project area for this species and therefore no direct or indirect effects will result. No cumulative effects will result since no habitat for this species will be affected.

Determination
No Impact to the Zigzag darner will result from this project because no habitat exists in the project area.

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